

distal tip 271 is disposed within the left atrium. This may be facilitated by first using a stylet (not shown) and a guidewire (not shown) to pierce and expand the atrial septum. In use, blood is

5 withdrawn from the left atrium through apertures disposed adjacent to the distal tip 271 of second inner cannula 270, into blood pump 3, whereby the blood is expelled from blood pump 3 into the patient's aorta through cannula 580.

10 It will now be apparent to those skilled in the art that various modifications, variations, substitutions, and equivalents exist for various elements of the invention but which do not materially depart from the spirit and scope of the

15 invention. Accordingly, it is expressly intended that all such modifications, variations, substitutions and equivalents which fall within the spirit and scope of the invention as defined by the appended claims be embraced thereby.

20 We claim:

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1. A system for circulating blood in a heart comprising:

25 a cannula body having a distal end for insertion through an incision and including first and second interior flow paths to circulate blood, a conduit communicating with one of the first and second flow paths and being sized to

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extend, in use, beyond the distal end of the cannula body for passage into a heart chamber, to thereby input or outflow blood from the heart chamber, the cannula body including a first curved portion to

5 direct passage of said conduit from the distal end into the heart chamber, and

a port communicating with the other one of the first and second flow paths to input or outflow blood at the distal end.

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2. A system according to claim 1 and further, wherein the cannula body includes a second curved region to direct the passage of a second conduit into a second heart chamber.

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3. A system according to claim 1, wherein the pump, the first flow path, and the second flow path have a combined a priming volume external of the heart of not greater than about 1000 ml.

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4. A system according to claim 3, wherein the priming volume is not greater than about 30 ml.

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5. A system according to claim 3, wherein the priming volume is not greater than about 10 ml.

6. A system according to claim 1, further including a pump communicating with the proximal end

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of the cannula body and operating to circulate blood through the first and second interior flow paths.

7. A system according to claim 1 further  
5 including a closure assembly on the cannula body  
operating in a first condition to close the port,  
thereby preventing blood circulation within the  
cannula body between the first and second flow  
paths, the closure assembly operating in a second  
10 condition to open the port, thereby allowing blood  
circulation within the cannula body between the  
first and second flow paths.

8. A cannula for access to an interior  
15 body region comprising a body defining a lumen  
having a distal region, the lumen including a bend  
in the distal region.

9. A cannula according to claim 8,  
20 wherein the lumen includes a main axis, and wherein  
the bend is bent at an angle between 0 and 360  
degrees relative to the main axis.

10. A cannula according to claim 9,  
25 wherein the angle is between 0 and 270 degrees.

11. A cannula according to claim 9,  
wherein the angle is between 0 and 180 degrees.

12. A cannula according to claim 1,  
wherein the lumen includes first and second bends in  
the distal region.

5           13. A cannula for access to an interior  
body region comprising a body defining a lumen  
having a distal region, the lumen including at least  
a two-dimensional configuration in the distal  
region.

10           14. A cannula according to claim 13  
including deformable flexible wire disposed within  
the body to form the two-dimensional configuration.

15           15. A cannula according to claim 13  
including a memory shape alloy disposed within the  
body to form the two-dimensional configuration.

20           16. A cannula according to claim 13  
including multi segmented wire with resistive  
sensitive connectors disposed within the body to  
form the two-dimensional configuration.